

92 112. Each PDC cutting element 112 includes a diamond table 113 affixed to a tungsten carbide substrate 114. The bit body 100 includes suitably positioned nozzles or "jets" 120 to discharge drilling fluid in selected directions and at selected rates of flow.

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IN THE DRAWINGS:

Please replace the drawing sheet originally filed in the application with a new drawing sheet filed herewith having changes marked in red ink for the Examiner's approval.

IN THE CLAIMS:

Please cancel claims 1-4 and 12-14.

REMARKS

Please reconsider the application in view of the above amendments and the following remarks.

In the Office Action dated February 15, 2002, the Examiner objected to the drawings for having incorrect reference numerals thereon. The Applicants have submitted a drawing sheet on which corrections to Figure 4 as required by the Examiner have been made in red ink for the Examiner's approval.

The Applicants hereby affirm the previous election, without traverse, to the invention recited in claims 5-11, drawn to a structure for a drill bit body and a drill bit. Claims 1-4 and 12-14 have been canceled. No correction of inventorship is required as a result of canceling these claims.

The Examiner objected to the specification for lack of clarity in the paragraph beginning at line 8 on page 7. The Applicants have amended this paragraph to correct the unclear portions noted by the Examiner.

The Applicants have amended the title of the invention in accordance with the Examiner's suggestion.

The Examiner rejected claims 5, 8 and 11 as anticipated by U. S. patent no. 4,499,795 issued to Radtke. The Applicants respectfully traverse the rejection. Claims 5, 8 and 11 recite, respectively, a bit body, a drill bit including a bit body, and a bit body including a main bit body.

The bit body recited in each of claims 5, 8 and 11 includes at least one “mounting pad” for mounting at least one cutting element thereon. The cutting element has a diamond table affixed to a substrate. The “mounting pad” is a surface on which the cutting element substrate is affixed. Affixing is typically performed by brazing. See Applicants’ specification page 6 line 11. By contrast, the drill bit structure shown in the Radtke patent includes recesses (drilled holes) for mounting “stud” type cutters therein. See Radtke col. 11, lines 42-59. The Radtke patent does not show any mounting pads for any of the cutters on the drill bit. Accordingly, one limitation in the Applicants’ independent claims, the “mounting pad” is neither shown nor fairly implied in the Radtke patent. Accordingly, the Radtke patent cannot anticipate claims 5, 8 and 11.

Further, while Figures 11 and 13 may give the appearance of having a relief groove underneath the position of the diamond table of the cutting elements, the Applicants respectfully note that Figures 11 and 13 in the Radtke patent, on which the Examiner is at least partially basing the rejection of claims 5, 8, and 11, are only cutaway sections through a cutter mounted in the recess therefor. The specification of the Radtke patent does not describe any such relief groove, but to the contrary states that “cutting element 87 has stud 88 positioned in recess 86 so that *cutter disc 91 abuts the bottom edge of notch 73* while the back edge of notch 73 provides added support for the stud against flexure ” (italics added). See Radtke col. 11 lines 60-64. The Radtke patent therefore states specifically that the diamond table touches the bottom of the notch in the blade, thereby negating existence of a relief groove as recited in the Applicants’ independent claims.

Accordingly, at least one affirmative limitation in each of the Applicants’ independent claims (the mounting pads) is not disclosed or fairly implied by the Radtke patent. Another limitation in each of the Applicants’ independent claims (relief groove under the diamond table) is explicitly disavowed in the specification of the Radtke patent. Even if Figures 11 and 13 of the Radtke patent could be fairly described as “showing” the relief groove recited in the Applicants’ independent claims (and the Applicants make no such admission), failure of the Radtke patent to show the mounting pad limitation avoids anticipation, while the direct contradictory statement in the Radtke patent (*cutter disc 91 abuts the bottom edge of notch 73*) makes the Applicants’ invention non-obvious in view of the Radtke patent.

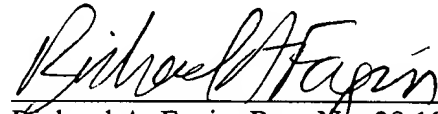
Claims 6, 7, 9 and 10 depend from allowable base claims and should be allowable for at least the same reasons.

The Applicants believe that this paper is fully responsive to each and every ground of rejection or objection cited by the Examiner in the Office Action dated February 15, 2002 and respectfully request early favorable action on their application.

Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 05516/084001).

Respectfully submitted,

Date: 5/15/02

  
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Appendix A  
Marked-Up Version of Title and Specification

IN THE TITLE:

STRUCTURE FOR POLYCRYSTALLINE DIAMOND INSERT DRILL BIT BODY [AND  
METHOD FOR MAKING]

IN THE SPECIFICATION:

In a drill bit body made according to the invention, a displacement such as shown in Figures 1 and 2 is positioned in the mold at each place where a cutting element is to be mounted. Each mounting pad thus formed in the bit body will have a relief groove such as shown in Figure 3. An example of a PDC cutter drill bit made according to the invention is shown in Figure 4. The bit body 100 has thereon a plurality of blades 110. Each of the blades 110 has mounted thereon on a plurality of mounting pads each shaped according to Figure 3). Each of the mounting pads has thereon a PDC cutting element 112. Each PDC cutting element 112 includes a diamond table 113 affixed to a tungsten carbide substrate 114. The bit body 100 includes suitably positioned nozzles or "jets" 120 to discharge drilling fluid in selected directions and at selected rates of flow.